

Revolutions

Official publication of the Peter Harrison Centre for Disability Sport
Issue 23 Summer 2018

“Our mission is to improve knowledge about Paralympic sport and to promote the substantial health and quality of life benefits that can be gained through participation in disability sport and physical activity.”



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Loughborough
University

Peter Harrison Centre
for Disability Sport

Director's Forward by Vicky Tolfrey



Over recent months, it has been very rewarding seeing the relationships that the PHC have built doing great, impactful work. We had a fantastic start to the year with the visit of Dr Cheri Blauwet (Seven-time Paralympic Medallist from Harvard Medical School) funded through the Institute of Advance Studies (IAS) (see pages 16 and 17) sharing her wealth of knowledge. Notable achievements since the last newsletter have included publishing outputs with the English Institute of Sport (EIS) around the insights of athlete' experiences about transition and retirement; sharing the International spinal cord injury guidelines work within the British Journal of Sports Medicine (BJSM) readership; being short-listed for The Leadership & Management Awards (THELMA) 2018

award (Category: Knowledge Exchange/ Transfer Initiate of the Year); and being invited to the quadrennial International Wheelchair Basketball Federation (IWBF) Forum to discuss the 3vs3 wheelchair basketball format to be included at the 2022 Commonwealth Games. Some of these you may have seen on our PHC webpages, but some further information is also shared within this edition of the newsletter. From a sporting perspective key sports that we work with (Paratriathlon, Wheelchair tennis and Wheelchair rugby) have all got off to a flying start and I wish them well at their Summer Major Events that are approaching. As usual, I welcome new staff to the Centre (see pages 3 & 4) and wish Jan van der Scheer the very best with his move to Canada (the coffee meetings will sadly be missed). That said, over the years I have had the pleasure of working with many students and post-doctoral students and it is fantastic to see how their careers have progressed to positions within disability sport and physical activity related positions as they move on beyond Loughborough University.

Vicky

Director of the Peter Harrison Centre for Disability Sport

Selected Highlights

From left to right, Kris Clements, Esther Hope and Vicky Tolfrey at THELMA Awards 2018 evening in London, Visiting Professor Kathleen Martin Ginis in the PHC lab and Visiting Professor Maureen MacDonald and her son Evan supporting both GB and Canada at the wheelchair basketball with Vicky Tolfrey and Mike Hutchinson in Sheffield.



New PHC Members

Dr Viola Altmann, Medical Doctor at the Sint Maartenskliniek, Nijmegen, the Netherlands. She is also an international classifier in wheelchair rugby and Visiting Fellow of the School and Sport and Exercise Sciences

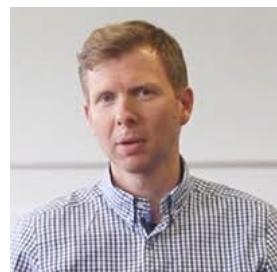
research@altmannen.nl



Viola has been involved as a classifier in wheelchair rugby since 1999. In her work as a medical doctor, she focusses on the application of movement analysis in rehabilitation practise and minimising the impact of impairment on activities in adults with neuromuscular disease.

Since January 2018, Viola has been a Research Associate in cooperation with the IWRF. She finished a PhD in wheelchair rugby classification in 2015, "Impact of trunk impairment on activity limitation with a focus on wheelchair rugby". Evidence Based Classification for trunk impairment in wheelchair rugby was established in this project. However, the assessment had an emphasis on trunk strength and the assessment of arm impairment was limited. To continue the development towards Evidence Based Classification in wheelchair rugby, a long term research collaboration was established between the IWRF and the Peter Harrison Centre for Disability Sport. The current projects emphasise on two topics: The impact of arm strength impairment on standardised activities, and activities on court in a realistic game situation; and the development of Evidence Based Classification for coordination impairment.

Dr Jamie Barker, Senior Lecturer in Sport and Exercise Psychology at Loughborough University
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Jamie completed his PhD in 2008 entitled "Using Hypnosis to Enhance Sport Performers Self-Efficacy" at Staffordshire University which was supervised by Professor Marc Jones, Dr Iain Greenlees and Professor Tom Cochrane. Whilst at Staffordshire he became Senior Lecturer in Sport and Exercise Psychology and then Associate Professor of Applied Sport Psychology before joining Loughborough University's School of Sport, Exercise and Health Sciences in 2017.

Jamie's research interests are focussed on applied (sport and performance) psychology research. Presently, Jamie is engaged in research looking at psychological resilience, leadership development, and organisational stressors in elite disability football in collaboration with The Football Association (The FA). Furthermore, Jamie is also a member of The FA's Disability Performance Group as an expert advisor on sport psychology.

Jamie has consulted in elite sport and business for nearly 20 years. Since 2014, Jamie has been the lead sport psychologist to the England Senior Cerebral Palsy team where he has co-ordinated sport psychology services throughout the CP elite pathway along with developing team, culture, and individual player interventions. In 2016, Jamie was the sport psychologist to the Great Britain Cerebral Palsy Football team at the Rio 2016 Paralympics.

Stop Press

Dr Jan van der Scheer, Prof Vicky Tolfrey and Dr Christof Leicht are looking forward to working with Dr Chester Ho (University of Alberta, Canada) on a new project developing guidelines for functional electrical stimulation (FES) cycling in spinal cord injury. This is an exciting project that has already involved Jan going to Canada. This work is funded by the University of Alberta. More to follow on this project in the next newsletter.

Congratulations to National and International partners who have and are involved with the Spinal Cord Injury exercise guidelines – it was a wonderful evening representing the team at the THELMA awards night in London for our nomination in the Knowledge Exchange category.

The PHC would like to congratulate PhD student Ben Stone and his new wife Zarah who got married in May.

New PHC Members

Cristina D'Angeli, PhD Student at Loughborough University
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Cristina joined the School of Sport, Exercise and Health Sciences at Loughborough University in January 2018 as a PhD student. Cristina graduated from Polytechnic University of Marche, Ancona (Italy), with a BSc in Biomedical Engineering in 2015 and from Polytechnic of Milan, Milano (Italy), with a MSc in Biomedical Engineering in 2017. Her PhD is supervised by Prof Vicky Tolfrey, Dr Mark King and Dr Barry Mason, partially funded by The Tennis Foundation. She aims to give applied biomechanical support to wheelchair tennis. The findings will help to inform guidelines on wheelchair tennis coaching and player development to improve performance and minimise injury risk. Her PhD is now focused on establishing the key technical principles of the tennis serve for wheelchair tennis players from both performance and injury perspective.

The project team are working in close collaboration with Cain Berry and Alex Cockram from the Tennis Foundation.

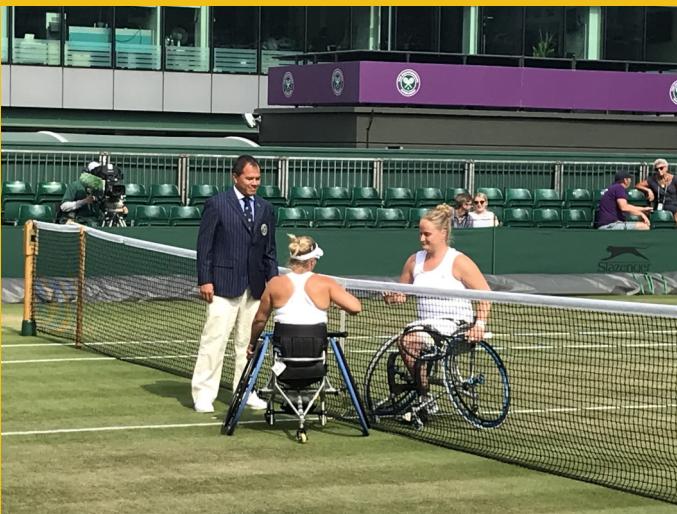
Conor Murphy, GBWR Talent Pathways Manager & PhD Student at Loughborough University
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Conor joined the School of Sport, Exercise and Health Sciences at Loughborough University in October 2016 as a student on the Exercise Physiology MSc course. Before this, Conor graduated from Trinity College Dublin with a BA in Physiology. In January 2018, Conor was appointed as a RA within the Peter Harrison Centre to compliment his PhD studies. His PhD is supervised by Prof. Vicky Tolfrey, Dr Barry Mason and Dr Christof Leicht and will focus on the application of recovery interventions within wheelchair-based sports. This is an area within Paralympic sport that research is limited, thus, Conor will look to initially explore the broad topic of recovery but plans to focus on a specific area as the PhD progresses. In addition, due to the collaboration of the Peter Harrison Centre and Great Britain Wheelchair Rugby, Conor has been appointed as the Talent Programme Manager at GBWR. This role involves working closely with the GBWR talent team, specifically, delivering initiatives to increase opportunities for talent identification, development, and confirmation.

Stop Press

Congratulations to all GB wheelchair tennis players who competed at Wimbledon 2018!



Conferences

Far and Near by Vicky Tolfrey

This year has found my travels overseas to Korea (see page 18) and National representation of the centre's work in London and Derbyshire. We have also had the pleasure of welcoming many guests to the PHC lab this year, which you will see in this newsletter. So first, I contributed to the Sports Injuries and Sports Orthopaedics Conference held at the Royal Society of Medicine (16th and 17th January).

The conference was organised in conjunction with the Institute of Sport Exercise and Health (ISEH) and provided an update on the current provision of care for sports injuries in the UK. It reached consultants and trainees in orthopaedics and sport and exercise medicine specialists (e.g. physiotherapists). I contributed to the session that provided an update on the International Olympic Committee (IOC) centre and National Centre for Sport and Exercise Medicine (NCSEM) and presented around 'improving wheelchair athletes' performance'. From the 'big city' to the lovely location of the Derwent Valley Mills World Heritage Site was the location of a rather less formal, but enjoyable presentation to a small group of rehabilitation specialists. On the second day of the rehabilitation medicine event (17th-18th May) I shared with delegates my experiences of sharing knowledge and lessons learnt from my Paralympic environment to clinical practice and vice-versa.



Skills4Performance 2018 by Mike Hutchinson

In January this year I attended a 3-day workshop, Skills4Performance, which is led by the English Institute of Sport (EIS). The workshop aimed at educating and developing practitioners with the skills required to succeed in the high-performance sport environment. The focus was very much on the non-practical related aspects of a practitioner's skillset and involved whole-group and discipline-specific sessions. Group sessions contained lots of educational presentations focussing on personality types and how these play out in terms of the strengths and weaknesses of different people. Further to that was the emphasis on being able to recognise this as a practitioner and to flex your behaviour and communication style to ensure that your message gets across in the most appropriate way for the person that is receiving it. What we learnt was then nicely highlighted by practical activities where we had to work as a group of practitioners to achieve a task whilst also competing against the other groups.

In the discipline-specific sessions we heard a lot of the stories and backgrounds of existing practitioners within the EIS. It was extremely interesting to hear particularly how important they felt their non-practical



skillset was in helping them to make an impact with the elite athletes that they have worked with.

Overall, they were 3 absolutely jam-packed days of learning and content. It was a real eye-opener to the world of being a practitioner in high-performance sport and I really recommend it for people with aspirations of doing so.

Sports Empowering Disabled Youth Conference by Janine Coates



Janine with Lize Weerdenburg

In November, Janine Coates attended the Sport Empowering Disabled Youth (SEDY) Conference in the beautiful city of Amsterdam. Hosted by Amsterdam University of Applied Sciences, this conference was a summary event to mark the end of a 2 year International Erasmus+ collaboration project between universities and organisations in 7 European countries – including the Youth Sport Trust based on Sport Park here at Loughborough University.

The SEDY project aimed to increase the physical activity of children and young people with disabilities by better matching demand and supply. The conference summed up the findings and conclusions from the project by showcasing the two innovative methods developed to help meet the aims of the project: *Focus on Me*, a method through which focus groups, using emoticon cue cards to initiate discussion, are utilised to understand the barriers and facilitators to physical activity for youth with disabilities; and *Personal Adapted Physical Activity Instructors* (PAPAI), where university students are employed in voluntary work assisting children with disabilities to try out various physically active hobbies to find one that best meets their needs. In summarising the key findings, Marije Deutekom, SEDY project leader (Amsterdam University of Applied Sciences and Inholland University of Applied Sciences) highlighted some lessons learned from the project. First, by sharing best practices across nations, we are better able to learn from each other in developing inclusive practice. This was highlighted through an inventory of adapted physical activity practices in the collaborating nations (resources available: <https://bit.ly/2sfBJfD>). Next, that one size does not fit all when it comes to

matching supply with demand, and thus an individual approach is needed to support young people with disabilities to become physically active. Last, there remain a number of barriers to physical activity engagement for young people with disabilities and better communication between policymakers, practitioners, researchers and importantly, children and young people with disabilities and their families is needed to move forward in understanding and removing barriers to participation in sport and physical activity.

These themes were shared by number of speakers, including policymakers and athletes with disabilities, who were invited to share their thoughts in a series of keynote talks and a roundtable discussion. Of note, Ratko Kovacic, President of the European Paralympic Committee, considered the need to improve access to sport for all by pioneering policy alongside the national Paralympic Committees which create opportunities for sport participation. Lize Weerdenburg, short track speed skating athlete & National and Global Messenger for the Special Olympics closed the conference with a talk which highlighted the empowering role that sport plays in the lives of people with disabilities. This was



Marije Deutekom inviting attendees to sign the Amsterdam "Sport Empowers Disabled Youth" Appeal

one of the key messages from the conference and a core underpinning value driving the SEDY project. The conference ended with an appeal for work which focuses on the needs of young people with disabilities in physical activity and sport to move forward and not stagnate, and conference attendees were invited to sign the appeal to show their support, taking forward the principle that sport for young people with disability should be the norm, not the exception.

King Power Wheelchair Rugby Quad Nations: Classification Workshops by Barry Mason

At the recent King Power Wheelchair Rugby Quad Nations event hosted at the Leicester Arena, colleagues from the Peter Harrison Centre along with Dr Viola Altmann staged a workshop showcasing previous and current research within wheelchair rugby. The workshop was chaired by Dr Altmann with contributions from PHC staff Dr Barry Mason, Prof Vicky Tolfrey & Dr Yim-Taek Oh. They were primarily aimed at classifiers but were also open to coaches and practitioners.

Dr Mason commented “The event was a real success. It was fantastic to update international classifiers about the research that has been going on behind the scenes and to get their thoughts about how we can progress things forward in the future to ultimately work towards an evidence-based classification system for the sport. In the past there have been difficulties with regards to getting all nations involved in the research. However, by making the classifiers and key stakeholders aware of our research and its intention to directly benefit the sport, we hope to have better buy-in from all nations in the future. This workshop was an important step to achieving this goal and hopefully we can run more workshops of a similar nature in the future.”



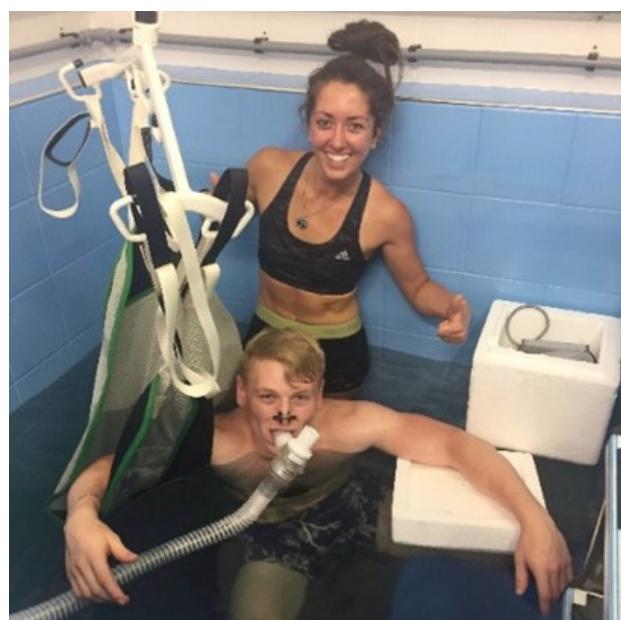
Dr Altmann presenting on the effects of impairment on court activities.

Hot Water Immersion Research—More Projects on the way by Christof Leicht

In the build-up to our next project with our Japanese collaborators we have been busy trialling a few things here in Loughborough. As part of a Masters student dissertation project, we are now investigating in more detail how hot water immersion influences appetite and the way our bodies process sugar. This may have implications for populations that are struggling to perform sufficient amounts of exercise, therefore also being at a higher risk for diseases where sugar metabolism is impaired –such as people with Type II Diabetes. For the student dissertation project this is trialled in healthy young people (see picture), but in Japan we will extend this research to people with a spinal cord injury. Access to exercise, or exercising per se, can be difficult for wheelchair users, they would therefore benefit from any extra health benefits that may come from bathing in hot water.

The first few studies on hot water immersion that we have performed show very promising results and support the idea that elevating body temperature through this procedure is beneficial to health. We are hence looking forward to another collaboration with our Japa-

nese colleagues to find out more about hot water baths, which are deeply rooted in Japanese culture.



Masters' students trialling hot water immersion.



Photo credit: Clare Pheasey

Translating the Spinal Cord Injury Exercise Guidelines

by Christof Leicht and Jan van der Scheer

We have reported in our last newsletter that the Peter Harrison Centre for Disability Sport has been involved in the creation of spinal cord injury exercise guidelines. This was a big task and we have been working hard to get to this stage, involving many people from different backgrounds, such as wheelchair users, medical doctors, physiotherapists, and researchers. The guidelines have been created, and the next step is to get them out into the world. As this world is not only English speaking, we are now in the process of translating the guidelines into different languages. It is very handy that we have quite an international mix at the Peter Harrison Centre, and the guidelines have already been translated to Dutch (by Jan van der Scheer and Sonja de Groot, our Dutch collaborator) and German (by Christof Leicht and our German collaborator, Alexandra Rauch). Translations in Swedish and Italian will soon be available, and we aim to follow up with other languages after that. Our international team that was involved in creating the guidelines is of great help with this.

Translating the guidelines is an important step to increase the reach of our findings. Part of the translation process is to create resources that will allow us to disseminate the guidelines, such as short videos or handouts that capture the information in few, simple

words and diagrams. This helps to implement the guidelines, making them accessible for end-users and their families and friends, medical professionals and policy makers.

Wetenschappelijke trainingsrichtlijnen voor volwassenen met een dwarslaesie

Toelichting

Deze trainingsrichtlijnen beschrijven het minimum aan fysieke training dat noodzakelijk is voor het verbeteren van:

- cardiorespiratoire fitheid (fitheid van hart en de longen) en spierkracht
- cardiometabole gezondheid (bijv. het risico op suikerziekten en hart- en vaatziekten)

De richtlijnen beschrijven training die uitgenoed dient te worden: niet fysieke impassevingen die in het dagelijks leven kunnen voorkomen, maar wel met de dwarslaesie-aangedane omgevingen die mogelijk zijn om de training op de juiste intensiteit en duur te maken, en daarmee prettig, veilig en haalbaar.

De richtlijnen zijn gedacht voor volwassenen (18-64 jaar) met een chronische dwarslaesie (minimaal 1 jaar na het optreden van de laesie), waarbij de functie (CI of hoger), met een traumatische of non-traumatische oorzaak, is verminderd tot degradatie, ingeworteld gebleekt, niet, enkelsoort of voorlopig en tijdelijk stabiel.

Vooraf met een trainingsprogramma moet beginnen, dienen volwassenen met een dwarslaesie te overleggen met een zorgverlener die bekend is met de trainingsmogelijkheden en trainingsrisico's gerelateerd voor mensen met een dwarslaesie. Mensen met een dwarslaesie kunnen verschillende symptomen ervaren te zijn van de zegulaten en symptomen van autonome dysfunctie tijdens training.

Voor volwassenen die nog niet trainen is het goed om minstens training te beginnen en geleidelijk te oefenen dat trainingsbelang, omdat dit de kans vergroot dat de training kan worden opgenomen. Het is moeit van minder dan enkele weken wegvoeren dat de rollenlift leidt tot (dieners) verbeetingen in fitheid, spierkracht of gezondheid.

De risico's verberden het volgen van deze richtlijnen, bij voorbeeld vermoeid en/ of lastig lopen/padelen met een rugzakje of lastig te liggen in de dwarslaesie.

De richtlijnen zijn bedoeld voor volwassenen die een dwarslaesie hebben van 1 jaar geleden tot nu toe opgetreden, die 65 jaar of ouder zijn, of die een hulp te hebben hebben met de uitoefening van dagelijks leven. Voor deze groepen is er op dit moment geen bewijs dat de training effectief is om de gezondheid te verbeteren of de risico's en voorkeuren van de richtlijnen. Deze mensen dienen te overleggen met een zorgverlener vooraf aan een trainingsprogramma wordt begonnen.

Meer details dan kunnen snel mogelijk zijn tot gezondheidswetenschap, maar de richtlijnen zijn gebaseerd op de meest recente wetenschappelijke gegevens beschikbaar om een conclusie te trekken over de risico's voor iemand met een dwarslaesie die meer traint dan de richtlijnen beschrijven.

De richtlijnen

Fitheid

Voor het verbeteren van cardiorespiratoire fitheid en spierkracht, dienen volwassenen met een dwarslaesie minimaal het volgende te doen:

20	minuten matig tot zwaar intensieve duurtraining
+ 3	sets matig tot zwaar intensieve spierversterkende oefeningen voor alle nog functionerende grote spieren
2 keer per week	

Cardiometabole gezondheid

Voor het verbeteren van cardiometabole gezondheid, moet volwassenen met een dwarslaesie aangeraden minimaal het volgende te doen:

30	minuten matig tot zwaar intensieve duurtraining
3 keer per week	

Dit zijn richtlijnen ontstaan door een internationale onderzoeksgrup (s.t.o.r.) bestaande uit professor Dr. Michael Brundage (Universiteit van British Columbia, Canada) en Prof. Dr. Victoria Gonyea-Hayes (Loughborough University, Engeland).

Het samenvatten van de basis en toetsen van deze richtlijnen voor Nederlandsche deskundigen dient, in overeenstemming te zijn met de wetenschappelijke richtlijnen voor de gezondheidswetenschap. De richtlijnen zijn alleen te gebruiken in het kader van de richtlijnen dat openbaar beschikbaar is in het Nederlandse Openbaar Recht (www.ncbi.nlm.nih.gov/pmc/articles/PMC3296012/).

Meer informatie over de dwarslaesieconditie, Dr. Borgs Groot van de Berg, Universiteit van Amsterdam, Leiden, Utrecht, Groningen en Rotterdam, Amsterdam, 14 februari 2013.

International Collaborations

"We are delighted that our Coca Cola funded 'Fit for Life' project formed one of the foundations to this 'International' Spinal Cord Injury Exercise Guidelines work"

Prof Vicky Tolfrey



Physical and Technical demands of Wheelchair Tennis by Barry Mason



The PHC recently collected data at the NEC Wheelchair Tennis Masters at Loughborough University to further understanding about the physical and technical demands of the sport. Dr Barry Mason and Mike Hutchinson from the PHC worked alongside Dr Rienk van der Slikke from the Hague University of Applied Sciences in the Netherlands and collected data during matches using the Indoor Tracking System, inertial measurement units and video analysis.

Dr Mason commented "This tournament was an ideal opportunity to understand more about the physical and technical requirements of elite wheelchair tennis since the top 8 world ranked players from the men's and women's division and top 6 ranked players from the Quads division were in attendance. As you would ex-

pect there was some amazing tennis on display and the data demonstrated just how demanding the sport can be, with players capable of covering over 3km in a set. It was great to see that so many players were interested in the research and were keen to participate to understand more about their own game. Media attention around the project also grew, with numerous references made to the project throughout matches.. "

The data from the study is still being processed, however the results will further understanding about the physical and technical demands required to compete at the highest level. This information can then be utilised by coaches and practitioners to best prepare their players for the specific demands of competition.



Rienk and Barry fitting tags to a player's chair for analysis of physical and technical demands.

Stop Press

Congratulations to Rienk who successfully defended his PhD in May!



The Peter Harrison Centre for Disability Sport to present at IWBF Forum

At the quadrennial International Wheelchair Basketball Federation (IWBF) forum in August, Dr Barry Mason will present findings to representatives of each national wheelchair basketball governing body from countries across the world.

The Chairman of IWBF's Competition Commission, Charlie Bethel, explained:

"We had identified 3x3 as a format of competition that has had an incredible impact on the running game with FIBA, however in wheelchair basketball, 3x3 was being played in a variety of formats, all with strong advocates. We wanted to make sure that we selected a system that worked logically, would market wheelchair basketball and most importantly be true to the sport in how it is played. We are confident that we have selected the best format for the sport and it will help to drive our sport forward."

The findings of the PHC provided detailed information on both perceptions, technical and physical attributes of the different formats considered. This was complemented with further research and discussion around delivery and development opportunities.



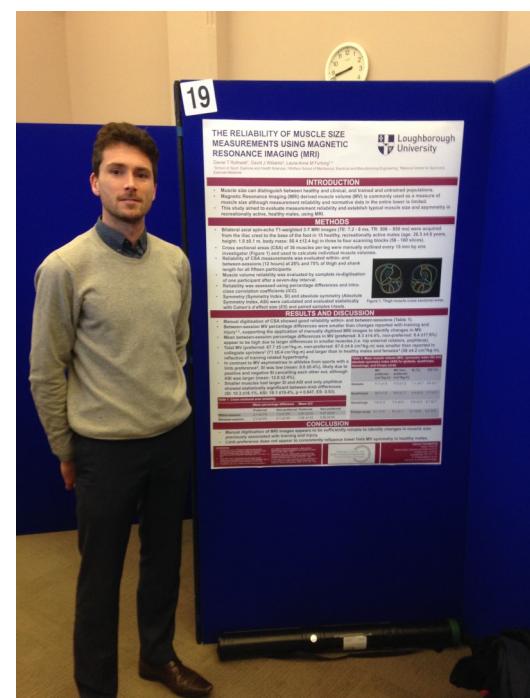
This was a global piece of work with a collaboration between Loughborough University, The University of British Columbia and students from The Netherlands. British Wheelchair Basketball very kindly provided athletes for the testing at the birthplace of the Paralympic Games, Stoke Mandeville.

More about this forum will follow in the next newsletter.

Neuromechanics post very Severe Injury by Dan Rothwell

In the second year of his PhD studies, Dan Rothwell has been presenting his research to a wide audience. In November 2017 Dan attended the Defence and Security Doctoral Symposium (Swindon, UK), where he took on the challenge of summarising his research aims, work so far, and future plans in just three minutes. This was received well by researchers from all realms of the defence sector and Dan won second prize in the 3-Minute Thesis competition. Dan's research to date has identified a reliable and time-saving approach to the manual analysis of MRI images, which is used for measuring muscle size. These findings were presented at the BASES (British Association of Sport and Exercise Sciences) biomechanics interest group meeting (University of Salford, UK) and the BASES student conference (Northumbria University, UK) in April 2018. Intriguing discussions were had with attendees regarding the implications of the findings for future research, particularly the accompanying data reporting typical muscle size symmetry in young, active males, which is achieved differently across individuals. Moving forwards, Dan's research will quantify muscle size and symmetry in young, active lower limb amputees. This will be accompanied by measurements of muscle function so that important information can be made available to practitioners working with lower limb

amputees and hopefully contribute to the continued forward progression of amputee exercise rehabilitation, benefit quality of life, and improve longevity.



Dan presenting his research at the BASES Conference

"The importance of research collaboration: A first glimpse from a MSc Student." by Sydney Valentino

In my final year as an undergraduate student in the Department of Kinesiology at McMaster University, Prof. Maureen MacDonald and the Vascular Dynamics Laboratory hosted Mike Hutchinson, to continue a global partnership with Prof Vicky Goosey-Tolfrey. This experience left me wondering how international collaboration played a role in research. Prior to this, I had the perspective that research collaboration wasn't anything more than a logo on a presentation or a long list of authors on a paper from all different institutions.

Towards the end of my first year of my two-year master's degree at McMaster University, and I was given the exciting opportunity to travel to Loughborough University and work at the National Centre for Sport and Exercise Medicine (NCSEM). I was going to another research environment, with a focus on learning novel techniques, and network with other researchers that share a similar passion as my own. Here are some of my enriching experiences at Loughborough University put into a list of why international collaborations are so important: a first glimpse.

Spread the work, share resources: Every university is going to have different personnel and equipment that can make your work more efficient. Whether it's sharing ideas about how to get the work done or delegating tasks to individuals with different expertise, this is a major advantage to having research connections. Linking these world-class institutions has created an opportunity to share best practices and form links to support good quality research. Through this collaboration, I have been fortunate enough to be at two fantastic research institutions, especially for the field of exercise science. When working with Dr Jan van Der Scheer throughout my stay, I gave my time to help develop his project in return for learning new skills. This has now equipped me with the knowledge and process on conducting a systematic review, in addition to all my training at McMaster University.

Generates ideas for future projects: Interacting with passionate researchers from various domains provides a different approach to research which may challenge your own views. These ideas can lead to future projects, whether it be exploration for your own

lab or a collaborative project. For me, understanding the role of a systematic review in a research area, was an important one. This type of paper can summarize the past literature in a way that can change the trajectory of future research for you and for others. Being equipped with this new skill, I am confident in my ability to thoroughly search the literature to map a landscape of what has already been accomplished for my own research.

Encourages creativity: New perspectives from someone knowledgeable in a different niche of research can be some of the most insightful feedback. Even if it does not directly relate, working with someone who is coming from a different angle can elevate your research to the next level. At Loughborough, Mike Hutchinson organized an afternoon of research presentations amongst some of the PhD students and myself. It was a great opportunity to hear from all the various areas of study that are taking place at NCSEM and to get perspectives on my research that could lead to future projects.



Sydney presenting her research to research staff and students within the PHC.

Visits to the PHC

Efficient learning by immersing yourself into the new research environment: The opportunity to travel to a university and completely immerse yourself in the culture of a different research environment, as well as, their work and communication style can make collaboration really efficient, especially in the early stages of a project. This can lead to more productive virtual communication to continue your collaboration when you return. I have really enjoyed working with Jan to continue on the projects, which has been made possible by having a good foundation of each other's research goals and interests from my trip to Loughborough.

Exploration of the research world at large: By learning how another lab conducts their research, you can re-evaluate some of your own research processes without doing an entire degree elsewhere. This was probably one of the most enlightening parts of the trip for me. As I continue through my research career, I am evaluating what kind of research environment I enjoy most. In the past, the Vascular Dynamics Lab was able to offer its connection to the MacWheeler community at the Physical Activity Centre for Excellence (PACE) to aid in the recruitment of recreationally active individuals with spinal cord injury for an exercise study when Mike Hutchinson was visiting Hamilton. My trip to the

NCSEM gave me insight to the unique and vast amount of research being conducted in conjunction with Paralympic athletes.

Fostering relationships with other institutions: You may be the only person that someone has met from your university, and in that moment, you are the ambassador for your whole university. This link increases awareness of the work your lab is capable of and can also be an opportunity to make an unlikely connection that fosters future work.

Additional to all these opportunities for learning, I experienced a small taste of life in Loughborough. One event that was surprisingly comforting to me, was a visit to the Radmoor Spin Studio. As a Spin Instructor at the Pulse, McMaster University gym, I really enjoyed the classes and I loved the amount of energy created in an otherwise small corner room. I ran sprints with the weekly Tuesday group of researchers, which was a surprising visit to a challenging hill. Also, Jan's birthday barbecue (pictured below) was perfectly timed as an evening excursion to celebrate and chat with a great group of people. Thank you to everyone at the Peter Harrison Centre for making my visit so enjoyable and I hope to find my way back in the future.



Sydney socialising with members of the PHC and Peter Carruthers (former Paralympic wheelchair racer) and all 'smiles' in the lab with Mike Hutchinson.

Korea Wheelchair Rugby Visited the Peter Harrison Centre

by Yim-Taek Oh

I was excited that I could invite my colleagues from Korea's Wheelchair Rugby association to the PHC, just a few months before the 2018 Pyeong-Chang Paralympic Games. Professor Jong-Bae Kim (Chief of Korea Wheelchair Rugby, left of the picture) and his colleagues Mr Yoon-Ho Kim (The secretary-general of Korea Wheelchair Rugby), Mr Young-Ki Kim (Classifier) and Mr Sun-Ho Choi (Deputy section chief) visited the PHC during 18-23 Dec 2017 as part of Korea Sports Science Advanced Technology Exchange Program. This visit was funded by the Korea Paralympic Committee. I would like to thank Prof Vicky Tolfrey and Dr Barry Mason of the PHC who offered presentations about ongoing state of the art research and technologies of PHC. Mr Yoon-Ho Kim also said, "It is surprising that there is a research group who are doing everything we have imagined for a long time. I would like to thank them for the pioneering work. We need to learn them from PHC". They also visited some unique places in British Paralympic movements: Stoke-Mandeville Hospital, University of Coventry and Manchester Metropolitan University. They attended lectures about Paralympic History (from Dr Ian Brittain) and Application of Sports Science and Technology to Paralympic Swimming (from Dr Carl Payton). Prof Jong-Bae Kim said that it was so nice to see the rich heritage of early Paralympic movement

and the most recent World-top class sports science and technologies applied to Paralympic sports. He strongly wanted to continue the exchange and research cooperation between Korea Wheelchair Rugby and the PHC. He also suggested to Prof Vicky Tolfrey about her visit to South Korea during 2018 Pyeong-Chang Paralympic Games and her key-note speech at International Symposium of Advanced Rehabilitation Technology for Clinicians and Engineers, Yonsei University (ISART 2018), where more information can be found on page 18. I hope that this visit will actively promote mutual cooperation, exchange and development between Korea Wheelchair Rugby and PHC, and contribute to the development of Korean Paralympic Sports.



National Biomechanics Day 2018 by Dr Laura-Anne Furlong, Daniel Rothwell, Simon Briley

Peter Harrison Centre members Dr. Laura-Anne Furlong, Daniel Rothwell and Simon Briley were involved in hosting an outreach day for year 10 students from four local schools as part of the global 'Biomechanics Day 2018' event on April 11th. The event provides students with an opportunity to experience the fun side of science and aims to encourage young scientists to choose biomechanics, 'the breakthrough science of the 21st century', when considering their further education and future career. Dr. Laura-Anne Furlong was the Regional Co-ordinator for National Biomechanics Day in Europe, promoting the event among sports biomechanists worldwide. The event was hosted in the Clyde Williams teaching laboratories at Loughborough University and was a team effort between staff and student biomechanists in the School of Sport, Exercise and Health Sciences and the University Schools Liaison Team. It provided 57 students with hands-on experience imaging muscles with an ultrasound machine, assessing and improving their flexibility, using 3D motion and force analysis, and understanding reaction times in sport. Students also learnt how biomechanics is applied around the world in elite sport and rehabilitation, from applications in skiing in Switzerland to elite perfor-

mance at the English Institute of Sport and sporting technology at Nike. They also learnt about the career paths of five lecturers based in the School of Sport, Exercise and Health Sciences at Loughborough University. The day was a success with 92% of attendees understanding what biomechanics was by the end of the day, compared to just 9% before attending. Images from the day were featured on social media and have hopefully helped to inspire the next generation of biomechanists.



Rob Shaw visits the PHC for the second time

by Rob Shaw and Vicky Tolfrey

What a trip what a trip. When you travel as someone who uses a wheelchair you tend to take extra precautions. For example, you make sure that your wheelchair is in top condition and that it's stowed away properly. Sometimes, despite your efforts, bad things happen. Cushions go missing, axels get cracked, or in my case, your tennis wheels get smashed to bits. This situation would have most people panicking. Your equipment is broken, in a foreign country, you're supposed to be a participant in two research studies, and there is only 3 days before your tennis tournament. I texted Prof Tolfrey when I landed, "Hey Vicky, I landed safe but my tennis wheels are damaged". She replied, "Don't worry we'll sort it out". Instantly I was at ease. Vicky and the group at the PHC have that effect on people. They follow through on their statements and they take care of their guests. Vicky got on the phone to Dr Mason and by the time I arrived in Loughborough they had sorted everything out. I had a set of Spinergy wheels waiting for me in the PHC lab and Barry had already contacted Bromakin to inquire about getting my wheels fixed. Over the next few days I was able to fully participate in both research studies and provided my input regarding small elements of the testing procedures for both studies. Both research teams were professional, excited, and open to receiving feedback regarding their procedures. Involving stakeholders (e.g. end users) throughout the research process is something my supervisor, Prof Martin Ginis, has always stressed to her students and its clearly a priority for the research teams at the PHC as well. I really appreciated being considered as a participant for both studies but more importantly I felt like my concerns and opinions as a stakeholder were received in a positive and constructive way. The outcomes from both of the studies I participated in will be relevant and meaningful to the end user because the research

teams are willing to listen to the needs voiced by their stakeholders. This is the way collaborative research should be conducted. Participating in both studies and seeing how the research teams at the PHC interact with their participants only strengthened my desire to collaborate with Vicky and her team in the future.

In addition to being a research participant, I was also able to train with a young local tennis player for the three days leading up to my tennis tournaments in Preston and Bolton. Vicky arranged for me to meet Jamie, a junior tennis player, who was willing to hit with me for a few hours each day. What an amazing opportunity. Not only are the tennis facilities at Loughborough top notch, the staff are respectful and helpful, and Jamie whipped me into tournament shape in no time. I subsequently had two extremely successful tournaments by winning Preston and making the semi-finals in Bolton. Vicky and her team were flexible and made sure that my participation in the research on campus did not interfere with my training. Another example of how they take care of their guests. Overall, my trip to Loughborough, albeit short, was very successful. Equipment disasters were managed, research participation was enlightening and tennis training was as good as it gets. Every time I come to Loughborough I find something else that appeals to me and every time I leave I can't wait until my next opportunity to come back.

Vicky commenting on Robs visit: "It was a pleasure to host Rob for a second time on campus as we continue to explore how his knowledge and experience can help develop our forward thinking and research strategy. He managed to get some hitting practice in with local youth tennis player Jamie Potts before heading up to play in two tournaments in the UK."



Visits to the PHC

Visit of Dr Cheri Blauwet by Jan van der Scheer

At the PHC, we were most honoured to see a visit in January of Dr Cheri Blauwet (MD, medical doctor) who is an Assistant Professor of Physical Medicine and Rehabilitation at the Harvard Medical School, and an Attending Physician at Brigham and Women's Hospital/Spaulding Rehabilitation Hospital, Boston, USA. Additionally, she is a former Paralympic athlete in the sport of wheelchair racing. Dr Blauwet has become a global advocate for the use of sport and physical activity to promote healthy lifestyles for all individuals with disabilities – exemplified by speaking at the United Nations in April, 2015. Furthermore, she has an emerging track record in the area of disabled sports policy making and in the area of body composition of disabled athletes, while also publishing on gender disparities in physical medicine societies.

At a public lecture held at Loughborough University and an Athena Swan Diversity event, Dr Blauwet spoke about her own journey and experiences in her work and sport career. She focused on how physical activity can have an enormous impact on the inclusion of people with disabilities in our societies. Both events were very well received by the audiences, of whom many said they felt inspired by the talks.

The visit of Dr Cheri Blauwet also involved an international expert panel meeting on developing evidence-based recommendations for assessing body composition (for example fat mass and lean mass) of wheelchair users. PHC members, Dr Jan van der Scheer and Prof Vicky Tolfrey had the pleasure of leading a meeting that included researchers, sport practitioners and clinicians such as Dr Terri Graham-Paulson (English Institute of Sport) and Prof Nick Webborn (Medical Officer of the International Paralympic Committee).

It was a tremendously rewarding visit for everyone involved. It is great to see how such a visit can foster and strengthen international and national exchange and collaboration.

To further the body composition project and the collaborations between Dr Cheri Blauwet and the PHC, Jan has recently visited Dr Blauwet and her team at Spaulding Rehabilitation Hospital (Boston, USA) in June. More to follow on this in the next newsletter!



From top to bottom: Dr Cheri Blauwet with Prof Vicky Tolfrey and Dr Fehmidah Munir (Athena SWAN Champion SSEHS). The international expert panel for body composition. Cheri visiting the PHC lab.

Following on from page 20, the PHC has a Q&A session with Dr Cheri Blauwet, Sports Medicine Physician at Spaulding Rehabilitation and Harvard Medical School, also former Paralympian.

Could you tell us a bit about yourself (eg, proud career moments. It would be great to split this into Paralympic success and then focus on being a clinician and researcher)

I am currently an Assistant Professor of PM&R at Harvard Medical School, where I practice at Spaulding Rehabilitation Hospital and the Brigham and Women's Hospital. I also have the background of being a Paralympic athlete and competing in three Paralympic Games (Sydney, Athens, Beijing) and bringing home a total of 7 medals. My proudest career moments include:

- Pursuing my medical degree while also being a top ranked Paralympic athlete (and not giving up on either endeavor!)
- Launching the Kelley Adaptive Sports Research Institute at Spaulding Rehabilitation Hospital and launching our speciality Spaulding Adaptive Sports Medicine Clinic
- Representing Team USA at three Paralympic Games
- Bringing home wins at the 2004 and 2005 Boston Marathon

What brought you to Loughborough?

As we have expanded our research and clinical focus through the Kelley Institute, we are very keen to understand the context of sports science as related to the Para athlete. The best way to do this is to see it in real time and to have the chance to discuss collaborative work and how to move the needle toward expanding our knowledge of Para athlete health and performance. It is an honour to visit institutions such as Loughborough, where it is clear that there has been a tremendous investment, over many years.

Could you provide us with some highlights from your trip to Loughborough (eg, meetings, presentations)?

My visit was fantastic overall, however two things that stand out were:

1. Having the opportunity to present at a collaborative session between the Peter Harrison Centre and the English Institute of Sport. At this session, we focused on the unique needs of the female Para athlete, which is an important, yet often underemphasized area in sports medicine and sports performance.
2. Kicking off a collaborative project focused on best practices in the measurement of body composition in athletes with spinal cord injury (SCI).



What do you think of the PHC and the research conducted here?

The PHC is well known globally as a leader in Paralympic sport science. It was fantastic to see the PHC labs and to have the opportunity to visit with Prof. Tolfrey and her team to understand how such a strong research infrastructure has been built over the years, and their plans for the future.

Could you tell us about your plans for future work/collaborations with the PHC?

Our current collaboration is focused on a systematic review related to testing body composition in people with (SCI), which has tremendous implications toward setting best practices regarding health monitoring and also athlete performance. We are in the initial phase of this work, conducting the systematic review to determine findings as well as interpret those findings together with practitioners and people with SCI. Based on this, we will determine if the literature is robust enough to justify the development of guidelines, or, whether more work is needed in this area prior to guideline development.



Dr Blauwet with a patient. Credit: Spaulding Rehabilitation Network.

Conference at Yonsei University and Winter Paralympics, South Korea by Jan van der Scheer and Vicky Tolfrey

In March, PHC members Prof Vicky Tolfrey and Dr Jan van der Scheer were invited to visit Yonsei University in Korea as part of a celebratory symposium led by Dr Jongbae Kim.

Fruitful discussions took place around Vicky and Jan's presentations at the symposium, helping to further build the work relationships with Dr Jongbae Kim and Dr Rory Cooper from the University of Pittsburgh.



Professor Vicky Tolfrey and Dr Jan van der Scheer are welcomed to ISART2018 by Dr Jongbae Kim and his colleague Wanho Jang.

During their keynote presentations, Dr Rory Cooper and Vicky gave an overview of their research in Paralympic and rehabilitative settings. Both use a similar approach: engaging with the athletes and clients to make sure that the research is tailored towards their needs and preferences. Jan's presentation on the International SCI Exercise Guideline Project also showed how important it is to have meaningful engagement with end users at each stage of a research project.

It was very interesting to see how sport and rehabilitation research is being conducted in South Korea. Different societies can have different views on research and user engagement; the conference was a fantastic opportunity to find out that meaningful engagement with end users is also at the heart of Dr Jongbae Kim's research group.

Vicky and Jan had also a fantastic time visiting the Paralympics and enjoying beautiful Yonsei University in Wonju, while being excellently hosted by Dr Jongbae Kim and the team in South Korea. Many thanks in particular to Wanho and Minkyung for showing the beauty of the region and how lovely the food is.

It was also a great opportunity for Vicky and Jan to catch up with overseas colleagues such as Dr Cheri Blauwet and Dr Jan Lexell who were also at the Paralympics.



Jan enjoys time at the Winter Paralympics with Jongbae Kim, his colleagues and Dr Rory Cooper.

The different Paralympic sites were beautifully laid out in the mountains and by the sea. For Jan it was the first time to experience the Paralympics with his own eyes – sports ranging from wheelchair curling to downhill skiing – a most inspiring experience!

Jan: "I Couldn't be more happy about this fantastic week in Korea! What a great opportunity to experience such an excellent conference, be inspired by discussions and networking with international and national colleagues and last but definitely not least, experience the Paralympics for the first time! I feel very fortunate to have been able to be there."

Vicky: "Our Korean hosts Jongabe, Wanho and Minkyung were so hospitable during our stay. It was a lovely trip from both a research and social perspective. I hope that we can engage in some future events



Vicky and Jan are welcomed to South Korea by Wanho Jang.

Research to Practice by Rob Townsend

Loughborough University's Dr Robert Townsend has been working with Nottinghamshire County Cricket Club (NCCC) to develop a programme for coaches working with children with disabilities.

Based on his research in disability sport, Dr Townsend developed the InPlay programme specifically for coaches working with children with disabilities in special educational needs settings. The outcome is a six-week, linked and progressive multi-sport programme designed to introduce the fundamental skills required to play cricket.

The InPlay programme was developed as a resource to improve coaches' confidence and knowledge in designing, delivering and adapting sports sessions to the needs of children with disabilities. Based on his research on coaching in disability sport, the InPlay programme is built around a reflective model where coaches are challenged to consider their assumptions about 'disability'. Evidence shows that coaching sessions that don't meet the needs of children with an impairment or coaches' negative attitudes and preconceptions can often make it difficult for children with a disability to participate in sport. The emphasis of the programme therefore is on making sessions inclusive and understanding how to adapt to individual needs to create fun and safe learning environments. The programme was commissioned by Nottinghamshire Cricket Board as a means of enabling and encouraging progression into local disability sport opportunities for participants, leaders, volunteers and coaches.

Graham Redfern, Inclusion and Diversity Officer at NCCC, said: "The idea for the programme was to expand and progress our community disability sport provision while at the same time upskilling our community coaching workforce. I needed the expertise of Dr Rob

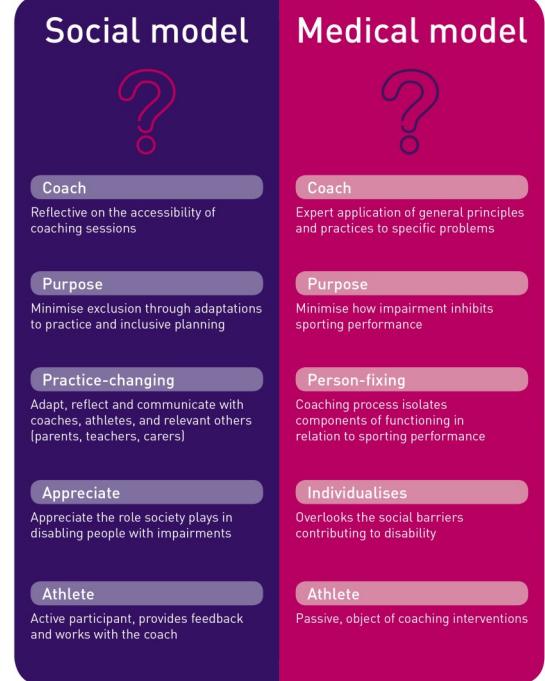
Loughborough InCoach Workshop

The PHC hosted an event on coaching in disability sport at the NCSEM-EM this June.

Developed using research conducted by Dr Robert Townsend and Professor Chris Cushion, the InCoach workshop was a free, evidence-based coaching clinic for practitioners working at all levels of disability sport, from community through to disability performance pathways.

In a field where many coaches are not trained in the specifics of coaching athletes with a disability, this lack of professional training and knowledge can act as a significant barrier to inclusion. This workshop aimed to inform coaches about the key considerations of coaching in disability sport, introduce evidence-based resources and provide an opportunity to reflect critically

Reflect: Models of disability



Sources: Oliver, 1996; Townsend, Smith & Cushion, 2016; Townsend, Cushion & Smith, 2017

Townsend to structure the content of the programme and tasked him with a free hand to base this around his research and thoughts. I am incredibly proud of it and would like to thank Rob and Loughborough University for their support."

Furthermore, Dr Townsend recently delivered training to 10 NCCC community coaches to introduce the programme and develop their confidence to coach children with disabilities. NCCC are now trialling the programme with local schools with a view to rolling the programme out in the summer. This activity linked in to recent work within the PHC to disseminate disability coaching research, building on a recent research showcase and leading into the Loughborough inCoach workshop.

and share best practice and experiences and was very well received:



"Great workshop on disability coaching by @robtownsendPhD (Rob Townsend) at @PHC_Lboro tonight. Encouraged thinking, questioning and reflection of coaching approaches. Particularly like the view of Athlete Centre approach and be interested to see how we can use this with @saintswcr (Northampton Saints Wheelchair Rugby)" - Jamie Higgins

"Fantastic and engaging Para coach workshop with @robtownsendPhD and @CoachC1 Thanks @PHC_Lboro for the wonderful hospitality #effective-coaching #inclusive #bestpractice #disability" - Tabo Huntley

Japan Para Championships by Tom O'Brien

The Japan Para Championships, held in Chiba city roughly 40 minutes from central Tokyo, Japan, gave the GB wheelchair rugby team great exposure to a fantastic country ahead of the 2020 Tokyo Paralympic games where Tom had a fantastic opportunity to travel as the teams sport scientist. Upon arrival the team was greeted and settled into the Candeo hotel, with the first couple of days set aside to overcome any jetlag. It was also an important time to try and adapt to the climate as temperatures were upwards of 25°C at times, with humidity levels also higher than here in the UK.

In the build-up to the tournament some of the players and staff were able to visit a local elementary school where players could meet the children and staff. They had the opportunity to get involved with some chair skills and a shortened game to finish off. *Tom commenting on the school visit:* “It was a fantastic eye-opening opportunity where the children were all very well behaved. It was great to see the smiles on their faces meeting the players and having a go in the wheelchairs themselves. On top of this, it was also a fantastic to experience the different culture within the Japanese education system compared to here in the UK.”



Great Britain team; Myles Pearson, Aaron Phipps, Ayaz Bhuta, Nick Cummins, Lee Stutley and Tom O'Brien with the translation team.

The tournament itself enabled GB to explore different tactics and line-ups against the Japan team (currently bronze Paralympic medalists), as well as France and Sweden, which involved 7 games in total. The tournament was organised such that each team would play each other twice, with the top two playing in the final and the bottom two playing off for third and fourth. GB made it to the final where they met Japan for the third

time in the tournament with GB coming second in this instance. Tom thought it was a fantastic learning opportunity for the players: “Although the team had high expectations coming into the tournament, I feel the players and coaches have learnt a lot about the preparation strategies involved with making sure the squad peak in terms of performance for the final games, where it counts the most. The coaches had the chance to look at a number of line-ups they may not have previously seen against solid opposition, which will be crucial in the lead up to the World Championships in August, and the 2020 games.”



“Following the tournament, we had a little bit of down time where a number of the squad visited Tokyo. I personally wanted to get a feel for the history of some Japanese temples. This was one thing I was able to tick off my bucket list when we visited the Sensō-ji temple, Tokyo. As well as visiting the temple, we also had a great experience visiting Takshita street, Shibuya cross roads, and the 2020 Paralympic games venue for wheelchair rugby”.



Update on England Visually Impaired Cricket team

by Mike Hutchinson

It has been a new-look winter programme for the squad this year, with no whole-group sessions from September to April. With head coach Ross Hunter turning full-time in February 2017 he has been able to revolutionise the programme to try and make it work as best for the squad as possible. This has meant focusing on playing competitive fixtures outside in the summer as much as possible, with more frequent 1-on-1 sessions with players during the winter.

The challenge for the players has been to take ownership for their development as individuals, and as a squad, however their response has been fantastic. The whole squad are dual-career sportspeople, having to balance work, university and other commitments with their cricket. This has been a particular challenge for me and the physio as we have had to design and implement individual programmes for players to suit their needs. The foundation of this was our Screening Weekend in early October 2017. The winter block was then evaluated with repeat screening in March 2018. The squad are now in a strong place to continue their physical preparation leading into the summer season, with the ultimate goal being a tour to India in October 2018. Check out the next newsletter to see hear all about that.

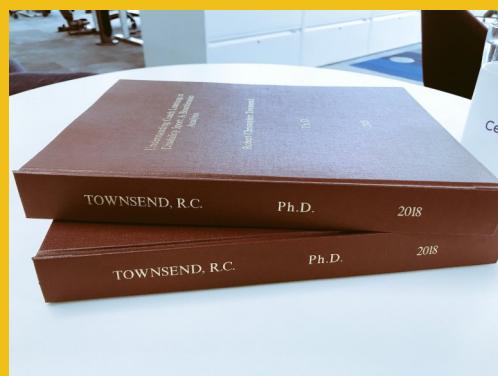
It is a really exciting time for the team with a large ongoing project investigating the bats that the players use. More information can be found on the ECB web-

site at <https://www.ecb.co.uk/video/650705/what-would-a-new-design-of-bat-look-like-if-created-for-england-s-visually-impaired-team>.



Dan Field batting practice. Credit in the link above.

Stop Press



Congratulations to Rob Townsend who is not only defended his PhD successfully but also is now located in New Zealand at the University of Waikato, as a Lecturer in Sport Coaching and Pedagogy. Rob will look to continue his line of research in coaching in disability sport and we look forward to continued research and enterprise collaborations

Many thanks to Eric Angstadt (Manager ITU Paratriathlon) for supporting the final PhD data collection of Ben Stephenson. Ben, supported by Sven, has just returned from Italy following a successful event.

We are pleased to announce that Dr Christof Leicht and Sven Hoekstra have received support from the Joint Usage/Research Project of Sports for Persons with Impairments (Japan) to undertake a study in Japan focusing on 'The effect of hot water immersion on glycemic control in people with a spinal cord injury'. More to follow in the next newsletter.

A trip to visit Prof. Marco Bernardi at Sapienza University, Rome by Christof Leicht

In May I was in for a treat: I got an invitation from Prof. Marco Bernardi to visit his laboratories at Sapienza University in Rome. Prof. Bernardi is a medical doctor, and in this capacity, he has been involved with a range of Paralympic sports and hundreds of athletes over the years. He has collated a huge amount of data, and some of it is waiting to be published. In addition to research in Paralympic athletes, Prof. Bernardi's research interests are in the Health and Well-being area. He has been investigating upper body exercise and high intensity interval training, which overlaps with research interests we have here at the PHC.



During my visit we have therefore aimed to come up with a plan to analyse the data that have been collected and to develop a strategy how to best promote and

publish the results. It is our hope that this first collaborative activity leads to more in the future, such as joint projects or joint research outputs.



The activities after work were equally pleasant: Prof. Bernardi was born and raised in Rome and has a keen interest in Roman history – the perfect tour guide in this city full of ancient monuments, churches and museums! I was pleasantly surprised to see the active wheelchair icon in one of the biggest attractions in Rome, the Roman Forum. The rest of Europe has some catching up to do!

Safe travels Jan

Members of the PHC look forward to the continued collaborations with Jan and Kathleen (University of British Columbia, Canada).



Countdown to Tokyo by Dr Tom Paulson, Head of Paralympic Performance Support, EIS

In two years from now the final selections and competition plans will be being made for the Tokyo 2020 Paralympic games. However, we move into the business end of the cycle safe in the knowledge that our partners at the British Paralympic Association (BPA) started their initial preparations long before the medals had been decided in Rio. A large number of EIS practitioners also got their first experience of delivering performance support at an away Paralympic games under the sunny Brazilian skies. Throughout the first 9 months of my new role it's been clear to see the breadth of expertise and experience that will continue to work collectively to ensure GB athletes have the opportunity to deliver their best when it counts the most.



Caz Walton with representatives from Keio University

In January Rebecca Shanahan, EIS Performance Innovation consultant, and myself joined our colleagues Nik Diaper, Anneli McDonald and Caz Walton from the BPA on a recce to the proposed pre-games accommodation and training venues in Yokohama. The trip included 2 days at Keio University which will be used by both Team GB and ParalympicsGB before athletes move into the Olympic/Paralympic village in Tokyo. We received a typically warm Japanese hospitality and it was a great opportunity to visit the facilities that will be used by a number of our sports for their final preparations. Caz Walton was given a superstar welcome having last travelled to Tokyo as an athlete at the 1964 games and she was able to show the gold medal to prove it!

Whilst in Tokyo I was also fortunate enough to visit the Japan Sports Council's National Training Centre and the Japanese Institute of Sport Science (JISS). Com-

pared to our 'network' support model in the UK, where sports and practitioners are spread across several sites, the JISS delivers centralised support with all sports and services under one roof. It was interesting to see the fully accessible on site hotel, athletes lounge and restaurant, and recovery centre with hydrotherapy and cryotherapy facilities amongst many others. It was also clear to see the commitment to sport science delivery with a number of Paralympic-specific roles being created in Nutrition and S&C in the lead up to 2020.

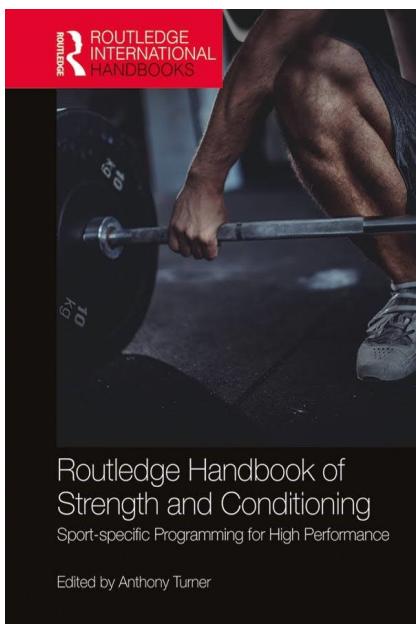
Back in the UK the last couple of months have been spent finalising the EIS's strategy for supporting our Paralympic sports and practitioners over the next 2 years leading into Tokyo. As an institute our priorities are focused around 1) Developing practitioners and Heads of Performance Support with the Paralympic expertise required to deliver world leading support services to athletes and coaches; 2) Aligning support services to support sports in answering key performance questions in preparation for the Paralympic games; and 3) Cutting edge performance innovation, applied research and knowledge aggregation to promote world leading standards in science and medicine. A great example of upcoming activity that targets each of these priorities is the UK Paralympic High Performance Conference which will be making a return in March 2019 (dates tbc). We recently had the first planning group meeting including members of the UK Sport led Paralympic Performance Impact Group along with Professor Vicky Tolfrey who brings the academic perspective to the conference planning. More information to follow!



Paralympic Village construction site

Routledge Handbook of Strength and Conditioning

by Anthony Turner



As coaches, it is very likely that we will work with a multitude of athletes, across a variety of sports throughout our career. Now, with the ever-increasing popularity of the Paralympic and Invictus Games, we will almost certainly work with athletes that have a disability. The uniqueness of each athlete, disability, and sporting regulations can provide quite a challenge, which is especially compounded by the little experience most coaches have to draw upon, and the fact that disability sport is not typically addressed as part of many sports degree programs.

This book aims to bridge this gap so that coaches can confidently and effectively work with athletes with a disability, toward the goal of optimising physical preparation for the demands of their sport. It draws upon experts in the field, both academics conducting research and defining physiological and biomechanical responses, and coaches delivering strength and conditioning programmes, and acting on the ever-evolving research base. This book is fortunate enough to be able to share the insights of Professor Vicky Tolfrey,



director of the PHC, and Dr Tom Paulson, Head of Paralympic Performance Support at the EIS. Dr Paulson and Professor Tolfrey discuss their research and current understanding of these athletes, all of which underpin exercise selection and fitness assessment. Then Ed Baker of Neurokinex (formerly EIS) and Alex Villiere (Middlesex University) share their experiences in training these athletes (in GB wheelchair rugby and fencing), detailing their training systems, periodization, and their ability to think outside the box and adapt exercises to the requirements of each athlete. It is as much an insight into their practices as it is their philosophies and creativity to reach the desired adaptation.



Stop Press

Since our last newsletter Dr Barry Mason, Prof Vicky Tolfrey and Dr Viola Altmann have plans in place for the wheelchair rugby classification work to be collected later this year. This work will now include the input of Dr Nicola Petrone from Italy who we will be welcoming to our labs soon. I am sure you will see updates of this work via twitter and in future newsletter articles.

The PHC is also pleased to highlight that Prof Rory Cooper will be visiting the Centre in March 2019, as part of Loughborough University internal funding provided by the Institute of Advanced Studies. He will contribute to a thematic event of 'Athlete in Motion'. Watch the PHC and University website with how you can register to attend his public lecture around his fantastic research in Assistive Technologies. As a taster, go to <https://www.shrs.pitt.edu/people/rory-cooper>

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Wheelchair athletes needed

If you

- Currently compete in one of the sports of Wheelchair Rugby, Wheelchair Basketball, Wheelchair Tennis or Wheelchair Racing
- Are older than 18 years old
- Are interested in contributing to important research within disability sports
- Would like clarity on the use of recovery strategies in wheelchair-based sports

Then you might like to help us with our research by completing an easy and quick online questionnaire.

Why are we doing this research?

To determine:

- The prevalence of recovery strategies in wheelchair-based sports
- The most commonly used recovery strategies by participating athletes
- The perceived most effective recovery strategies and why



What is there to gain?

This research and the subsequent research will help develop guidelines for recovery strategies specific to wheelchair-based sports and the athletes that compete within them.

If you would like to complete the questionnaire please follow the link:

<https://lboro.onlinesurveys.ac.uk/recovery-strategies-and-perceptions-of-athletes-competing-2>

or if you would like further information please contact: c.murphy@lboro.ac.uk

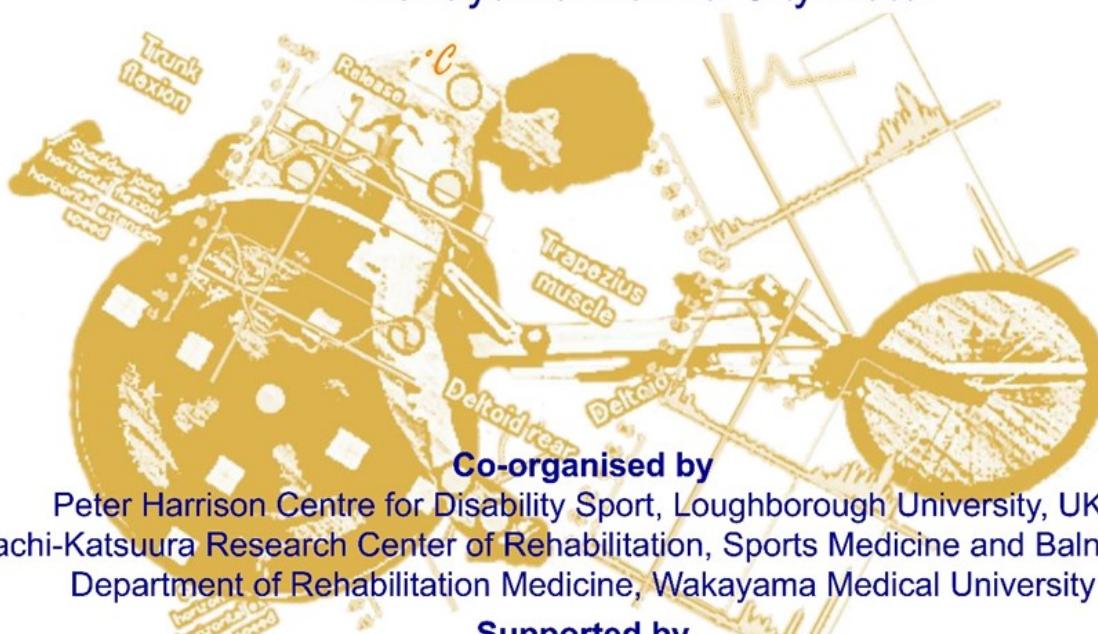
International Symposium of Sports Medical Science for Persons with Impairments in Wakayama 2018

~A Scholarly Legacy to Post 2020 Tokyo~

Aim for the limits!

Date : 22-23 September 2018

Venues : Wakayama Prefectural House
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Department of Rehabilitation Medicine, Wakayama Medical University

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**Joint Usage/Research Center of Sports for Persons with Impairments
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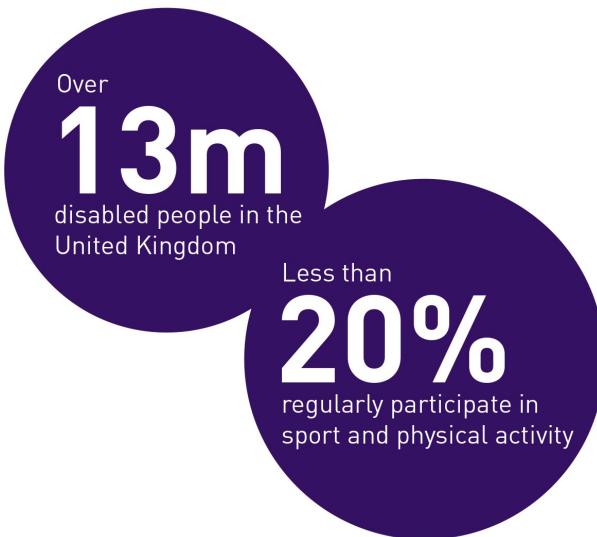
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Coaching in Disability Sport: Summary



Loughborough
University

Peter Harrison Centre
for Disability Sport



Barriers



Individual



Social



Cultural



Political

Many coaches have never had any training or education in working in disability sport



This can result in a lack of confidence, awareness and knowledge from coaches



Coaches are often left to learn 'on the job'



“ Fear of the unknown

Too many coaches are thrown in at the deep end and asked to survive the next experience unscathed.

-Coach

I was completely out of my depth. I didn't know how to speak to these people, I didn't know anything and it was really, really frightening.

-Coach

Source: Townsend, Cushion & Smith, 2017

Produced by Tom O'Brien and Vicky Tolfrey

Thanks to all the contributors

We hope you enjoy learning about the Centre and find the links to the website and other resources useful. If you have any feedback or would like to contact the Centre please email: phc@lboro.ac.uk or contact the PHC Director at V.L.Tolfrey@lboro.ac.uk

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